MICROCHIP DRUG DELIVERY DEVICES

Abstract of the Disclosure

Microchip devices for the release of molecules, such as drugs, are provided which include (1) a substrate comprised of two or more substrate portions bonded together, (2) at least two reservoirs in the substrate containing the molecules for release, and (3) a reservoir cap positioned on, or within a portion of, the reservoir and over the molecules, so that the molecules are controllably released from the device by diffusion through or upon disintegration of the reservoir caps. The substrate comprises upper and lower substrate portions having first and second reservoir sections, respectively, which can be in communication with one another together, or which are provided with an internal reservoir cap interposed between the reservoir sections wherein release of the molecules from the reservoir section in the lower substrate portion is controlled by diffusion through or disintegration of the internal reservoir cap. The internal reservoir cap can be disintegratable so that the two reservoir sections thereby form a single reservoir. In the latter embodiment, the reservoir section of the lower substrate portion can contains molecules different in quantity, type, or both quantity and type, from the molecules contained in the reservoir section of the upper substrate portion. The filled reservoirs can be capped with materials that passively disintegrate, materials that allow the molecules to diffuse passively out of the reservoir over time, or materials that disintegrate upon application of an electric potential.